

GUIDELINES FOR THE PREPARATION OF SIGNING PLANS (Upon request from the Signing Section)

I. Signing Information Available Electronically

Electronic information prepared by NCDOT is available on the NCDOT Web-site at: <http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/SIGN/> ; or upon request from the Signing Section.

Non-proprietary computer software for support and sign design is included in this information.

II. Description of Work Required of Private Engineering Firm (PEF)

An understanding of the signing sections of the MUTCD, NC Supplement to the MUTCD, NCDOT Standard Specifications, and NCDOT Roadway Standard Drawings are required for design and development of signing plans.

A. Signing Plan Preparation: Prepare signing plans (SP) on latest version of Microstation used by NCDOT to include the following information and supporting documentation:

1. General Requirements: The PEF is required to conduct a Signing field inventory to determine existing signs within the project limits. The PEF is also required to inventory existing signs that fall outside of the project limits that will be effected by the project. Accurate 1" = 100', (for metric projects 1:1000), CADD drawings of roadway plans, hereafter referred to as signing plan view sheets, which show pavement, paved shoulders, bridges, culverts, guardrail, drainage pipe, survey lines, right-of-way lines, stationing as labeled on roadway plans, equalities, north orientation for each sheet, signalized intersections labeled, beginning Signing project station, and ending Signing project station. Proposed traffic flow arrows shall be shown on these sheets at the beginning and end of each sheet, at overhead sign locations, and following any lane transitions. Signing seed file is located on the Signing Web page. Identify and resolve any right of way issues or utility conflicts with sign locations. Meet with appropriate NCDOT Units of Division Personnel to resolve these issues.

2. Sign Locations: Locations of re-erected existing signs, existing signs remaining in place, proposed signs, and future signs by station on L-lines, Y-lines, and ramps is required except when stationing is not available. When stationing is not available, such as outside of the project limits, signs are required to be dimensioned from a fixed point or sign spacing shall otherwise be indicated on plans. Graphic representation of all existing, proposed, and future signs on the L-lines, Y-lines, and ramps are to be positioned on the plans as traffic would see them.

3. Sign Design: Sign designs showing all sign face fabrication details are required. Signs shall be designed to accommodate future messages when necessary. Sign designs shall be prepared using the latest version of GuideSign software.

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4. Ground Mounted Support Design for Type A and B Signs: Determination of S dimensions from X-sections (or from field survey when X-sections are not available) is required for Type A and B ground mounted signs. Design of supports is required using these S dimensions. Support chart including support sizes, lengths, and weights, for all Type A and B ground-mounted signs is required. (Spreadsheets are available electronically through Signing Web Page.)

5. Coordination for Barrier Footings, Guardrail and other Protection Devices: The PEF is required to coordinate with Roadway Design or Design Services if additional guardrail, cable guiderail or other protection devices is needed for assemblies. The PEF is required to provide the Structure Design Unit locations of Overhead Sign Assemblies located in median barrier.

6. Special Provisions: Project Special Provisions for special signing items are required to be written by the PEF, unless previously written and sealed by NCDOT. When written by the PEF, these provisions are required to be sealed by a Professional Engineer of the PEF. For PEF reference, the Project Special Provisions written and sealed by the Department are included in the files available electronically through Signing Web Page.

7. Overhead Sign Assembly: The PEF is required to coordinate the mounting of any ground mounted signs that will be mounted on structures with Structure Design Unit. An overhead sign assembly cross-section sheet is required for each overhead sign assembly, hereafter referred to as a structure line drawing. These sheets include lane widths, slopes, location of supports, S dimensions at support locations, positioning of signs relative to travel lanes, sign messages and / or future messages, future signs, vertical clearance, existing and proposed guardrail, walkway detail (if required), labeling of facility and direction of travel, windload and deadload requirements to be used for the design of structure and footings, and all applicable notes.

8. Lighting Design Sheets by NCDOT: Lighting system design sheets prepared and sealed by NCDOT will be provided to PEF on or near the return of the 90% review for inclusion in final plan reproductions.

9. Quantities: Estimated quantities for the Engineer's cost estimate are required for signing items. Quantity calculations and summary are required to be completed using the spreadsheets provided electronically through Signing Web Page. (named: quantity calculations and quantities summary).

10. Coordination with Traffic Engineering Branch: The PEF is required to coordinate with Traffic Control and Pavement Marking & Delineation Section staff when locating and designing overhead signs and sign assemblies, lane drop signing, and "All Traffic Exit" signing. The PEF is required to advise the Signing Section if pavement marking plans are not available. The PEF is required to label signalized locations on the signing plans.

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11. Meetings: The PEF is required to attend Preliminary Field Inspection and Final Field Inspection meetings. The PEF is required to meet with Division and Regional Traffic Engineering staff to review preliminary signing plans.

B. Signing Plan Submittals: The PEF shall make submittals for review by the Traffic Engineering and Safety Systems Branch Signing Section at the following milestones:

Notes: 1) The Signing Section may combine or eliminate milestone submittals depending on project specifics.
 2) An overview of the entire project (plan view sheets only) on 1 roll-out sheet is required by the NCDOT for each milestones.

1. Initial SP review: 2 (½ size) sets of Signing Plans and 1 roll out ½ size plan view consisting of the signing plan view sheets with all existing, proposed, future signs (including messages) located in the format of the final product. All necessary sign relocations are also required to be included in this submittal. The approval of this review shall complete 25% of the SP work.

Submittal of 1 (½ size) corrected set of initial SP is required for review by field personnel and FHWA.

3. Interim SP review: 2 (½ size) sets of Plans and 1 roll out ½ size plan view consisting of the corrected signing plan view sheets with all signs located, sign designs, completed type E and F sign sheets, ground-mounted sign support chart with support designs and design calculation information (S-Dimension Worksheets), and structure line drawings completed in the format of the final product. The approval of this submittal shall complete 50% of the SP work.

Submittal of 1 (½ size) corrected set of interim SP is required for approval by Signing Engineer.

4. Final SP review: 2 (½ size) sets of Plans and 1 roll out ½ size plan view consisting of the summary of quantities sheet with list of applicable Roadway Standard Drawings, quantities estimate and computations, draft of Project Special Provisions (other than those prepared and sealed by NCDOT), and all corrected signing sheets and supporting documentation required in the 50% submittal. The approval of this submittal shall complete 90% of the SP work.

5. Final Plan submittal: Original sealed set of approved signing plans, 1 roll out ½ size plan view, and 5 (½ size) bond copies, original quantities estimate and computations, sign designs in binder including cover sheet listing signs (form for cover

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sheet available electronically through Signing Web Page), original of all required Project Special Provisions sealed by Professional Engineer, design files on CD that have name of sealer, registration number, and date of sealing inserted where seal, signature, and date are located on original plans, and all other supporting documentation shall be submitted for final acceptance by the Signing Section of the Traffic Engineering and Safety Systems Branch. The approval of this submittal shall complete 100% of the SP work.

C. All Roadway plans and cross section CADD files developed by the Highway Design Branch of the Department will be made available to the PEF for use in developing the signing plans, unless specifically stated otherwise during project negotiations.

D. It shall be the responsibility of the PEF to coordinate the preparation of the signing plans with the Roadway Design Unit (or the Design Services Unit) of the Highway Design Branch of the Department. The roadway plans made available to the PEF shall not be considered final plans. It is the responsibility of the PEF to get updated plans throughout the development of the project. Any revisions to the signing plans necessitated because of changes in the Roadway plans within the original signing project limits shall be considered within the scope of work of this Agreement.

E. The Signing Section may require that certain items in the preparation of the signing plans conform to the methods currently in use by the Signing Section. The Signing Section may provide the PEF with forms, charts, computer programs (except proprietary), or other information, and request that these items be used by the PEF in the preparation of plans.

F. It shall be the responsibility of the PEF that all signing (and components thereof) shall be designed in accordance with the "MUTCD for Streets and Highways", the "North Carolina Supplement of the MUTCD" and the "NCDOT Standard Specifications for Roads and Structures".

G. Final plans shall meet the approval of the Department. Said approval shall not relieve the PEF of liability or the responsibility to correct any error in their plans or computations after the 100% Final Plan Submittal. The PEF will be required to make any such corrections without additional compensation.

III. Work Standards

A. The plans, sign designs, sign support designs, design and quantity calculations, project special provisions, any other supporting documentation, and design files on CD shall be submitted to the Department upon completion of the work and become the property of the Department.

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B. All plans shall be prepared on sheets furnished by the PEF, and shall be 34" x 22" in finished dimensions. The Department may furnish the PEF with sheets to incorporate into their plans prior to final plan reproductions.

C. All plan sheets shall conform to the requirements of the signing section. A 4 ½" x 4 ½" area for full size sheets, directly below the project information block in the upper right corner of all sheets, shall be left blank and unobstructed.

D. Reproduction

1. The PEF shall be responsible for providing the following:

At 100%: 1 full size original set of plans sealed by Professional Engineer

2. The PEF shall be responsible for reproduction of the signing plans as necessary to provide the following bond prints:

At 25%: 2 (½ size) sets initial SP review prints;

1 roll out ½ size plan view;

1 (½ size) set of corrected initial SP review prints;

At 50%: 2 (½ size) sets interim SP review prints;

1 roll out ½ size plan view;

1 (½ size) set of corrected interim SP review prints;

At 90%: 2 (½ size) sets final SP review prints;

1 roll out ½ size plan view;

At 100%: 5 (½ size) copies of approved final SP sealed by Professional Engineer;

1 roll out ½ size plan view

Other reproductions will be by the Department.

E. Project Special Provisions - the North Carolina Department of Transportation Standard Specifications for Roads and Structures, 2006*, and the Standard Special Provisions issued by the Division of Highways shall apply for materials and construction on all work described above. The PEF shall prepare thorough and complete Project Special Provisions covering those items of material, work, and other conditions for the signing items of the project which are not covered at all, or not covered as desired in the Standard Specifications or Standard Special Provisions. These Project Special Provisions shall be submitted for review at the time prints of final plans are submitted for review. The 100% submittal of these Project Special Provisions shall be sealed by a Professional Engineer employed by PEF.

The Standard Special Provisions prepared by NCDOT are available for viewing on the Department's electronic files through Signing Web Page. When required for the project, these provisions will be printed and sealed by NCDOT.

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